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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,042	09/12/2003	Tzong-Shi Jan	TS02-096	6719

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EXAMINER

POMPEY, RON EVERETT

ART UNIT	PAPER NUMBER
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2812

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/661,042

Applicant(s)

JAN

Examiner

Ron E. Pompey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 27-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,7,8,11,14,17,18,21 and 24 is/are rejected.
- 7) ☒ Claim(s) 2,3,5,6,9,10,12,13,15,16,19,20,22,23,25 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12-24-03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-26 in the reply filed on 2-8-05 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1, 11, 14, 18, 21 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Harai (US 4,612,629).

Harai discloses the limitations of:

providing a substrate, semiconductor devices having been created in or over the substrate, at least one point of electrical contact having been provided over the substrate(fig. 6d);

creating a first layer of metal (903, fig. 7f) comprising at least one first level metal interconnect in a first direction having an ending and a there-with associated end surface;

defining a channel (between 978 and 979' fig. 7f) over the first layer of metal having a central axis perpendicularly intersecting with said first direction further having borders separated from said central axis by a distance, said central axis overlying said end surface; and

creating at least one additional layer of metal (978, fig. 7f), comprising at least one metal interconnect not overlying said channel in a second direction, said second direction perpendicularly intersecting with said first direction

wherein: said first layer of metal comprising multiple first level metal (fig. 7f) interconnects in a first direction having endings and there-with associated end surfaces, said end surfaces of said multiple first level metal interconnects being linearly positioned; (col. 18, ln. 48 – col. 20, ln. 65).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 7-8, 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Harai (US 4,612,629) as applied to claims 1, 11, 14, 18, 21 and 24 above.

Harai does not disclose the claimed limitation(s) of:

wherein said at least one additional layer of metal comprising overlying levels of interconnect metal, comprising metal interconnects not overlying said channel in a second direction, said second direction perpendicularly intersecting with said first direction; and

wherein said metal interconnects not overlying said channel is stacked and parallel.

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However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make multiple overlying levels of interconnect metal that are stacked and parallel not overlying the channel, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine use multiple overlying levels of interconnect metal that are stacked and parallel not overlying the channel, because the multiple layers will allow multiple devices to electrically communicate to the first metal interconnect layer.

Claim Objections

6. Claims 4, 11, 14 and 18 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. These claims have limitations to a broader, conductive material, than the independent claims 1 and 21, metal layer, first level interconnect and additional interconnect layers.

Allowable Subject Matter

7. Claims 2-3, 5-6, 9-10, 12-13, 15-16, 19-20, 22-23, and 25-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

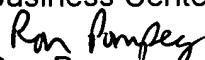
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8. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record, either singly or in combination, fails to disclose the limitations of: wherein: said at least one additional layer of metal further comprising at least one via over said end surface area of said at least one first level metal interconnect and making contact there-with or said at least one additional layer of metal further comprising at least one interconnect between said at least one first level metal interconnect and said at least one via.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ron E. Pompey whose telephone number is (571) 272-1680. The examiner can normally be reached on compressed.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ron Pompey
June 27, 2005


HA NGUYEN
PRIMARY EXAMINER